SENSE AMPLIFYING LATCH WITH LOW SWING FEEDBACK

ABSTRACT

A system is presented for latching and amplifying a capacitively coupled inter-chip communication signal that operates by receiving an input signal on a capacitive receiver pad and feeding the input signal through an inverter to produce an output signal. The output signal is fed back through a weakened inverter to produce a feedback signal that is fed into an input of the inverter to form a latch for the input signal. The weakened inverter is biased to produce a feedback signal that swings between a high bias voltage, V_H, and a low bias voltage, V_L. V_H is set slightly higher than the switching threshold of the inverter, and V_L is set slightly lower than the switching threshold. This feedback signal causes the input signal to reside within a narrow voltage range near the switching threshold of the inverter, thereby making the inverter sensitive to small transitions in the input signal.